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DISEASE NOTE

First report of *Fusarium equiseti* causing crown and root rot of cucumber in India

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In 2018–2020, during surveys of approximately 160 ha in 15 cucumber growing locations across the Solan District of Himachal Pradesh, the crop was found to be infected by a root and crown rot fungus causing symptoms such as the yellowing and wilting of leaves in 5–15% of plants. Two–three days after the isolations were made from root, crown and stem portions (Aldakil et al. 2019), in 60% of 40 samples colonies grew out that were initially white, aerial and floccose and later on turned yellowish to buff brown in colour. The rest of the isolations instead generated colonies that were white to dirty white, flat and cottony. Overall three *Fusarium* spp. were isolated, and for further studies, the most frequent one was selected. Macroconidia, 3–7 septate with tapered and elongated apical cell and prominent foot shaped cell were observed after 6 days in culture, measuring 20.5- 50.5 × 3.4-6.0 µm in size. Chlamydospores were thick, intercalary, abundant in chains or clumps, ellipsoidal or globose measuring 5.6 × 8.4 µm in diameter. No microconidia were observed. On the basis of morphological characters, fungus was identified as *Fusarium equiseti* (Corda) Sacc. (Booth 1971; Leslie and Summerell 2006) and its identity got confirmed from ITCC, New Delhi (ID No. 82.11,109.19). For molecular characterization, PCR amplification of the ITS region of 5.8S ribosomal DNA was performed with primer combinations ITS1 and ITS4. In BLAST analysis, sequence (GenBank accession No. MT903412) of the fungus showed maximum 98.8% identity with the ITS sequence of *Fusarium equiseti* (MK713371).

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For pathogenicity test, 21-day-old seedlings of cucumber were inoculated with 50 ml of conidial suspension (1×10^7 conidia/ml). Symptoms of yellowing of leaves were observed 14 days after inoculation followed by necrosis and wilting. The seedlings died 20 days after inoculation, from which *F. equiseti* was re- isolated thereby, confirming Koch's postulates. Earlier, there is only one report on occurrence of this disease from Jordan Valley (Aldakil et al. 2019). To the best of our knowledge, this is the first report of *F. equiseti* causing crown and root rot of cucumber in India.

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Declarations

Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors.

Informed consent Informed consent was obtained from all individual participants included in the study.

Conflict of interest We declare that we have no conflict of interest.

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